When the rubber is the Road: How to use "tire chips" in your roads

On November 16, 1998, the Maine Local Roads Center and the New England Transportation Consortium sponsored a workshop on using old tire shreds/chips in roadway applications. Dr. Dana Humphrey from the University of Maine in Orono is recognized as a national expert on the subject and he talked to a group of 40 individuals with a diverse background. In addition to many municipal officials, there were folks from MDOT, DEP, and recycling vendors.

Several road projects have been done in Maine already. Some people may remember that the Town of Richmond rebuilt a low volume gravel road using tire chips in 1993. The road has performed very well and there are virtually no problems during mud season. Other projects have occurred in North Yarmouth, Orono, Moscow, Wesley, Topsham, and at the Turnpike's Portland airport exit.

For highway applications, tire shreds are the optimum product to use when light fill is needed to “float” a road across wet and compressible soils, or when lightweight fill is needed behind retaining walls and bridge abutments. To eliminate the possibility of tires catching on fire, there should be very little fine material in the fill, no air should be able to reach the tire layer, and the tire layer should be no more than ten feet thick.

During the workshop, case studies were discussed. As a road fill, tire shreds should be placed in 12” thick lifts, compacted, and finally covered with a minimum of 24” of gravel. This provides good vehicle weight support, proper subbase drainage, and insulation to inhibit frost from reaching the poor subgrade soils.

Recycling vendors attending the workshop noted that a minimum of 100,000 tires is necessary to be worthwhile. The recycling vendor’s equipment is portable and can set up at just about any site. They noted that the expense for processing tires comes from how much extra equipment they have to bring in to get the tires into their machine and moving the finished product around the site. The recycling vendors noted that they can not just come to a site and shred tires without having a project. Even though current evidence does not show any pollutants from shredded tires contaminating ground water, the Department of Environmental Protection wants to review and possibly require a permit when tire components are to be used as fill.

There was a wealth of information presented at this workshop. A workshop notebook is available by calling the Center.

Interesting facts about tire shreds used in roadways:

- one cubic yard of tire shreds contains about 75 tires
- tire chips provide great insulating value from frost (8 times better than gravel)
- a tire shred layer is highly permeable and provides excellent drainage
- tire shreds are lightweight (at least half the weight of gravel)
- Maine has 30 to 60 million tires in stockpiles